CLAIMS

1. A continuous flow ink jet printer, comprising:

a nozzle that receives ink from a supply line and generates ink drops;

an ink tank for providing ink to the supply line;

an ink gutter for recirculating unused ink drops back to the ink tank;

a replenishment tank that provides replenishment fluid for the ink tank; and

a control system that controls the flow of replenishment fluid to the ink tank based on an ink pressure along the flow line.

2. The continuous flow ink jet printer of claim 1, further comprising a valve for activating the flow of replenishment fluid from the replenishment tank to the ink tank.

3. The continuous flow ink jet printer of claim 2, wherein the control system controls the flow of replenishment fluid by adjusting an interval between activations of the valve.

4. The continuous flow ink jet printer of claim 3, wherein the interval is adjusted based on a difference between a current ink pressure and an ink pressure when new ink was installed.

5. The continuous flow ink jet printer of claim 4, wherein the interval is adjusted based on a normal evaporation rate of the ink.

6. The continuous flow ink jet printer of claim 1, wherein the control system further regulates a pressure along the supply line.

7. The continuous flow ink jet printer of claim 4, wherein the control system regulates pressure with a stepper motor.

8. The continuous flow ink jet printer of claim 1, wherein the ink pressure is sensed proximate the nozzle.

9. A replenishment system for supplying replenishment fluid to a supply tank, wherein the supply tank includes a supply line to supply a source fluid to a work piece and an return line to receive unused source fluid, the system comprising:

a replenishment tank that provides replenishment fluid for the supply tank, wherein the replenishment fluid adjusts a viscosity of the source fluid;

a valve that activates a flow of replenishment fluid into the supply tank; and

a control system that controls the activation of the valve based on a pressure in the supply line proximate the work piece.

10. The replenishment system of claim 9, wherein the control system controls the flow of replenishment fluid by adjusting an interval between activations of the valve.

11. The replenishment system of claim 10, wherein the interval is adjusted based on a difference between a current supply line pressure and a supply line pressure when new source fluid was installed.

12. The replenishment system of claim 11, wherein the interval is adjusted based on a nominal evaporation rate of the source fluid.

13. The replenishment system of claim 11, wherein the interval is adjusted based on a predetermined volume Vp required to lower the pressure by 1 psi.

14. The replenishment system of claim 10, wherein the interval is recalculated periodically by an algorithm in the control system.

15. The replenishment system of claim 9, wherein the work piece comprises a nozzle and the source fluid comprises ink.

16. A method for supplying replenishment fluid to an ink tank, wherein the ink tank includes a supply line to supply ink to a nozzle and a return line to receive unused ink, the method comprising:

periodically using a control system to recalibrate the ink pressure along the supply line to obtain an optimal print quality; and

after the ink pressure has been recalibrated, using the control system to automatically adjust a supply rate of the replenishment fluid to the ink tank, wherein the supply rate of the replenishment fluid is adjusted based on the recalibrated ink pressure.

17. The method of claim 16, wherein the control system includes a pressure sensor located proximate the nozzle and a pressure regulator for recalibrating the ink pressure.

18. The method of claim 16, wherein the supply rate is adjusted based on a difference between the recalibrated ink pressure and an ink pressure measured when new ink was added.

19. The method of claim 16, wherein the supply rate is adjusted based on based on a nominal evaporation rate of the ink.

20. The method of claim 16, wherein the replenishment fluid alters the viscosity of the ink in the ink tank.